Arts V 4.

THE

Young Sea-Officer's Assistant,

BOTH IN HIS

EXAMINATION AND VOYAGE.

IN FOUR PARTS.

I. The Substance of that Examination, which every Candidate for a Commission in the East-India Service, or the Navy, must necessarily pass, previous to his Appointment; respecting the Management of a Ship from her first coming out of Dock, to her clearing the Land.

II. Directions for working a Ship, in all difficult Cases, at Sea.

III. Necessary Observations in making the Land, and sailing up the Channel.

IV. General Instructions and Allowances from the Owners of East-India Ships to the several Commanders in that Service.

By JOHN ADAMS.

NEVER BEFORE MADE PUBLIC.

To which is added,

From the original Spanish of Don Juan,

A short, easy, Arithmetical Rule, for determining the COURSE and DISTANCE.

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ADVERTISEMENT.

THE following ſheets were not ſent to the Preſs, till they had firſt been ſubmitted to the peruſal of Gentlemen well acquainted not only with ſea-affairs in general, but with the particular buſineſs of which the Firſt Part treats, viz. The *Examination* which every Candidate for a Commiſſion in the Eaſt-India Sea-ſervice muſt neceſſarily undergo, previous to his appointment. From their approbation, I have reaſon to flatter myſelf, that it will be found to contain what is neceſſary to be attended to by every Officer in that, or, indeed, in any other ſervice, for the preſervation both of ſhip and cargoe, from her firſt coming out of dock to the clearing of the land.

The utility of the Second Part will immediately appear to all who are experienced in Sea-affairs. To the unexperienced it muſt be ſingularly beneficial, from the variety of ſelect and moſt approved directions for working a ſhip in all difficulties that may probably happen to her at ſea; ſo that a young ſeaman, by making himſelf maſter of theſe directions, and by attending to their operation, may attain more ſkill and management in one voyage, than he might otherwiſe arrive at in two or three.—This head, as well as the former, is treated in the way of *Queſtion and Anſwer*, as the moſt probable method of engaging the attention of young beginners, and imprinting the *Replies* and *Obſervations* in their memories; at the ſame time that the being pre-informed of what is to conſtitute their future Examination will naturally lead them to confirm, by obſervation, in their voyages, what they ſhall have before received on the experience of others.

The Third Part contains uſeful obſervations towards making the land after having made ſoundings; with directions for Sailing up Channel. The neceſſity of frequent application to charts (which are too often erroneous) will in a great meaſure be avoided by attending to theſe obſervations and directions; for they are collected from the notes of ſkilful perſons, and confirmed by long experience.

The Fourth Part, containing the general *Inſtructions* and *Allowances* from the Owners of ſhips in the Eaſt-India Company's ſervice to their Captains, it is preſumed will be conſidered as no improper Appendix to a work of this kind; at a time too, when public attention ſeems ſo deeply engaged in whatever relates to India Buſineſs; and eſpecially as theſe Inſtructions have never before been made public, and conſequently are known but to few; though they cannot but be acceptable to all.

I hold myſelf bound to acknowledge my obligations to ſeveral Gentlemen, whom I have

have had the honour to teach the uſe of the Nautical Almanack, for the principal matters contained in this little work; and, I truſt, they will not be diſpleaſed at ſeeing it thus made public, when they conſider how much it may conduce to *public* benefit.

Waltham-Abbey,
1773.

J. A.

PART I.

QUESTIONS and ANSWERS,

RELATIVE TO

The managing of a Ship, from the taking in of her cargo to her quitting the land.

In all or part of which, every Chief Officer in the *Eaſt-India* Sea-ſervice, and in the Navy, muſt be examined, previous to his being appointed.

AN

EXAMINATION, &c.

Q. SIR, you appear here to be examined in your abilities, neceſſary to qualify you for being appointed an Officer in the ſhip ———, Captain ———, now bound out to *India* in the Company's Service — a great charge. What do you look upon to be your duty in that capacity?

A. When I have received my Captain's commands, I am then not only to direct, but likewiſe to inſpect into every thing relative to ſuch orders, and ſee it properly executed accordingly.

Q. When your ſhip is out of dock, what is firſt to be done?

 A. After

A. After the proper Officers have examined the limbers, I would level the hold, by laying the kentledge from the fore-part of the fore hatchway to the after-part of the after hatchway.

Q. If you are taking in bales, how high would you dunnage, and what part of the ſhip moſt?

A. I would dunnage ſix inches, and moſtly about the well and main hatchway, and the wake of the chains and floor-timbers.

Q. Suppoſe you have one and an half foot water in your hold, and your ſhip heels four ſtreaks down; what dunnage ought you to have, to preſerve the cargo?

A. Three feet.

Q. How would you moor your ſhip at Graveſend?

A. I would

A. I would come-to with my ſmall bower, veer the ſervice into the hawſe, and then hang my beſt bower in the long-boat, and with the tide drop her aſtern; and, when the cable is taught, let go the anchor.

Q. You have been in the Downs: how do you moor there?

A. With my beſt bower to the S. W. upper Deal-mill and Deal-caſtle in one, with the South Foreland S. W. by S. in eight fathoms: I would veer away with the laſt quarter flood, and moor with the ſmall bower to the N. E.

Q. Where is the beſt anchoring in the Downs?

A. Bring upper Deal-church in one with Deal-caſtle, and anchor in eight or nine fathom water.

Q. What

Q. What are the marks for anchoring in the Downs, Deal-caſtle bearing Weſt?

A. The South Foreland S. W. and Sandown-caſtle N. N. W.

N. B. The uſual way of mooring a ſhip in the Downs is, with the beſt bower to the Weſtward, and the ſmall bower to the N. E.

Q. How would you unmoor in the Downs, with the wind at North?

A. I would ſplice my ſtream-cable to my ſmall bower, and veer away at half-ebb, that I might have time to ſtow my beſt bower, and ſhorten in my ſmall bower-cable, before the ſhip tends to windward; but, as ſoon as the tide ſlacks, if I were afraid to truſt my ſtream-cable, I would veer on my beſt, and take up my ſmall bower.

Q. Suppoſe,

Q. Suppoſe, with the wind Northerly, you were in a ſhip's hawſe in the Downs?

A. I would wait till the ſhip tended to windward, and heave to my anchor as ſhe tended to it.

Q. How would you work the ſhip out of the Downs, with the wind Southerly?

A. I would come no nearer the Goodwin than thirteen fathoms water, nor to the Main than eight or eight and a half fathoms; when I came near the Foreland, into no leſs than ten fathoms: there is a ſhoal off Weſt-caſtle fourteen feet at low-water, bearing E. about two miles.

Q. If it blow hard in the Downs at S. W. and you part your cables, what would you do?

A. I would ſtand out to the Goodwins, till I brought the South Foreland light S. W. by S.

then,

then, keeping in nine fathoms water, ſteer N. N. E. till the North Foreland light bore W. N. W. when I might ſafely hawl round for Margate roads.

Q. How do the Forelands bear of each other?

A. Neareſt North and South.

Q. How does the tide flow in the Downs?

A. By the ſhore S. S. E. and in the offing S. E. by S.

Q. What are the marks of the Goodwin, by which you are to know when you are clear of them?

A. The Goodwin Sands are two large quickſands, called the North and South ſands. When upper Deal-mill and Warner-caſtle are in one, then I am a-breaſt the South-ſand head; and, when the North Fore-

land bears N. W. by W. I am a-breaſt the North-ſand head.

Q. Suppoſe you were riding at anchor in the Downs, and an expreſs order came for you to go to the Weſtward, with the wind at S. W. or S. S. W. at what time of the tide would you unmoor?

A. I would unmoor at half-flood, to be in readineſs to weigh at high-water, and caſt her in ſhore (by reaſon of the tide being ſooner done in ſhore), if room; if not, I would tack and ſtand off in ten or eleven fathom water, then ſtand in to the ſhore in ſeven fathoms, and lay my top-ſails a-back till my anchors were ſtowed.

Q. Is there any danger in going out of the Downs? in what water would you ſtand in ſhore, and what water towards the Goodwins?

A. Yes;

A. Yes; between Deal and Warner-caſtle there are ſome ſhoals, with, at ſpring-tides, not above ſixteen or ſeventeen feet water at low-water. I would come no nearer the ſhore than ſix fathoms; and no nearer the Goodwin-ſands than ten or eleven fathoms: in ſome places, the nearer I go to the ſands, I ſhould have the deepeſt water; but then there would ſoon be ſo little water, that I ſhould be a-ground before I could perceive it ſhoal. I would, therefore, ſtand towards the South Foreland in nine fathoms, and to the South-ſand head in ſeven fathoms; there being gradual ſoundings.

Q. What are the marks for running through the Gulf-ſtream?

A. To keep the Light-houſe on the South Foreland in one with the Weſternmoſt end of the Southernmoſt clift in Old Stains Bay.

N. B. Stains

N. B. Stains Bay is the ſwamp that lies between two clifts, which lie a large half-mile to the Southward of Ringſdown, upon the South Foreland.

Q. What are the marks of the dangers going out of the Downs?

A. Upper Deal-mill in one with the corner of Warner-caſtle will lead me clear off. Upon Deal Church being open with the ſaid Caſtle about a ſhip's length, I muſt ſtand out ſo till I bring the Light-houſe in one with the Caſtle, and then I ſhall be a-breaſt of the South-ſand head; and, when the high Light-houſe opens to the Weſtward of Folkſtone Church with Hay-clifts, it leads me clear. I muſt obſerve not to ſhut in the Hope-land E. by. N. and the South-ſand head will lie off a full league.

Q. Suppoſe you were coming into the Downs, with the wind at W. blowing hard; which way would you lay your ſhip's head to?

A. I would come-to with my beſt bower, and lay the ſhip's head to the Eaſtward; but, if with the ſmall bower, I would lay her head to the Weſtward.

Q. For what reaſon would you do ſo?

A. Becauſe I ſhould thereby keep my cable clear of the cut-water.

Q. What is the courſe from the South Foreland to Dungeneſs? and what are the dangers?

A. From the South Foreland to Dungeneſs the courſe is S. W. by W. diſtance nine leagues: the dangers between them are the Ripraps; the ſhoaleſt part of which lies from Dover S. four leagues; from Calais clifts

clifts W. by S. from Folkſtone S. E. and E. S. E. four leagues; from Dungeneſs it lieth in length N. E. and S. W. diſtance about four leagues, both ends pointing to the Engliſh ſhore; it is very narrow, and has on it but fifteen feet at low water: I would come no nearer than twenty fathoms. When the Neſs bears N. W. by N. I am to the Northward of it: it flows at the Ripraps N. E. and S. W. that the tide runs to the Eaſtward till Three o'clock Full and Change, when it is half-ebb by the ground.

Q. How would you come to an anchor under Dungeneſs?

A. I would bring the Neſs Point to bear S. W. by S. or S. W. half S. in nine fathoms: in paſſing it I would come no nearer than twelve or fourteen fathoms: I would anchor to the Weſt, with the point E. or E. by S. in nine or ten fathoms.

N. B. It

N. B. It flows at the Neſs S. E. by S. and N. W. by N. the tide runs to the Eaſtward till Two o'clock Full and Change.

Q. What is the courſe from Dungeneſs to Beachyhead? and what dangers are there?

A. From the Neſs to Beachy the courſe is W. S. W. diſtance eight or nine leagues: there is a ſhoal between them called Pevenſey-ſand; and has on it, at low-water and ſpring, not twelve feet; it lays about E. by N. from Beachy, and S. half W. from Pevenſey-caſtle, diſtance from the ſhore about two miles.

N. B. It flows off Beachy and in the Offing N. by W. eleven hours, and S. by E. eleven hours.

Q. Suppoſe you were off Beachy-head, bound down the Channel, and the Wind came to the South; what would you do?

A. As

A. As the variation is in my favour, I would trim all ſharp, and ſtand to the Weſtward; and, I judge, if it did not overblow, I ſhould clear all.

Q. Being off Beachy-head, with a gale of wind at N. E. bound to Spithead, and at the cloſe of the evening; what is beſt to be done?

A. I would lie-to, with my ſhip's head to the N. N. W. till morning; then ſhe would drive about a Channel courſe, at the rate of two miles an hour, allowing what ſhe would loſe on the ebb ſhe would gain on the flood, and be in a fair way in the morning; I muſt come no nearer the oars than eighteen or nineteen fathoms.

Q. In caſe you were bound down the Channel, and the wind blows freſh at N. E. how would you unmoor your ſhip?

A. I would veer away upon my beſt bower; the wind would ſet the ſhip a-head, and eaſe my heaving in my ſmall bower.

N. B. If in caſting your ſhip ſhe be wind-rode, as ſoon as the anchor is right up and down, put your helm the way you would have her caſt, ſetting in the ſame braces abaft, and the contrary forward; but, if ſhe be tide-rode, put your helm the contrary to which you would have her caſt, and ſet in your braces forward: whichever way your helm is, your braces abaft muſt be the contrary.

Q. In ſailing from Beachy to the Iſle of Wight, what courſe would you ſteer? and what dangers are there?

A. The courſe is W. by S. diſtance ſixteen or ſeventeen leagues. The dangers between them are, the Eaſt-Borough-head, which lies from Arundel S. S. W. ſeven miles; and the

Oars,

Oars, which lie from Chicheſter Church S. S. E. four leagues. The leading marks, to carry you clear of the Oars, are, Dunnoſe Point W. or W. by N. and Culver Clifts N. W. by W. or W. N. W. When Chicheſter Church bears W. by N. I am to the Northward of the Oars.

Q. What are neceſſary to be obſerved in ſailing into Spithead?

A. If I were bound into Spithead, after I am to the Weſtward of the Oars, I would ſteer N. W. by W. or W. N. W. and open Sandown Caſtle, with the Culver Clifts, till I could ſee St. Helen's Church a ſail's breadth or two open with the Red Clifts of Bembridge Point; and that will clear the Ledge: then, by ſteering N. W. for the Buoys, I ſhould ſee the Gilkickers; muſt keep them in one, and that will lead me between the Buoy of the Warners and of the Dean: and then, on Potſ-

down, I ſhall ſee a large Chalk-pit; that and South-ſea Caſtle in one will lead me clear up to Spithead between the Buoy of the Horſe and No-man's land.

Q. In turning into Spithead, what do you obſerve?

A. I may open the Kickers each way; but, in caſe a fleet be at Spithead that ſhould obſtruct the ſight of them from me, there is a mark on the top of the Down on the Wight; by keeping that open above the trees, it will carry me clear up to Spithead: and, when the ſaid mark bears S. W. or S. W. by S. I am a-breaſt of the Horſe: I muſt come no nearer to it than ſeven fathoms; nor to No-man's land than twelve or thirteen fathoms.

N. B. The Buoys of the Warner and No-man's land are white; of the Dean and Horſe black.

Q. How

Q. How would you come to an anchor at Spithead?

A. I would anchor at Spithead with the Kickers N. W. the Ride W. S. W. and South-ſea Caſtle E. by N. or E. N. E. in eight, nine, or ten fathoms.

Q. How would you come to an anchor at St. Helens?

A. I would keep Sandown Caſtle juſt open with the Culver Clifts, till I ſhould bring St. Helen's Church a ſail's breadth open of the Red Clifts of Bembridge Point, or Ledge, (there are ſix or ſeven fathoms water), and anchor with the Church on the S. W. by W. or W. S. W. in eight or nine fathoms.

Q. Suppoſe you were moored at Spithead, with a cable and an half on the beſt bower, and one on the ſmall bower, and you have orders to ſail; at what time of tide would

you unmoor? and which anchor would you take up firſt?

A. I would begin to unmoor at the firſt of the flood; and take up my ſmall bower firſt.

Q. In ſailing round the Wight, what are your obſervations?

A. To keep clear of Ride Middle, I would keep South-ſea Caſtle a ſail's breadth open of the Kickers, till I open Weſt-Cowes Caſtle off Eaſt-Cowes Point; then haul over to Weſt-Cowes Caſtle, till I am two thirds over; then ſteer directly for Hurſt Caſtle, and, when a-breaſt of it, borrow pretty near it, and then ſteer right for the Needles Point: great regard muſt be had to the tides; for the flood ſets on the Needles; and the ebb, on the Shingles.

N. B. It flows at St. Helens nine hours and an half at the Full and Change; and, when it is half-water, you have a tide to work in with. There is a ſhoal, called the Weſt-

middle,

Middle, about two miles W. by N. half N. from Ride Middle; it lies S. E. and N. W. about a mile and an half in length, and has but twelve feet at low-water: when you are a-breaſt of the N. W. part of it, Calſhot Caſtle is N. N. W. half W. South-ſea Caſtle will then carry you clear of it, if you keep it a ſail's breadth to the Southward of the Gilkicker Point. The Brambles is a ſhoal that lies N. N. W. from the Weſt Middle; part of it is dry at low-water. If you ſail to the N. W. of the Weſt Middle, you ſail between it and the Brambles, leaving the Brambles on the Starboard ſide. When you come to the Weſt Cowes Caſtle, you muſt give it a good birth, by reaſon of a ledge of rocks that lies off from it. There is the Wardings rock that lies on the iſland ſide; to keep clear of which, you muſt keep the vanes of the windmill that is on the Iſle of Wight in ſight; and that will carry you clear. When you come

near the Needles, give them a good birth, to avoid the Chalk rock; you will have in the fair way nine or ten fathoms; but, when you come to the Chalk rock, you will have but four fathoms. It flows at the Needles S. E. by E. and N. W. by W. eight hours, fifteen minutes. Some other precautions may be neceſſary ſince the fall of the Needle; which may be eaſily obſerved.

Q. What is the courſe and diſtance from the Needles and Dunnoſe to Portland?

A. From the Needles to Portland the courſe is W. S. W. diſtance eleven or twelve leagues; from Dunnoſe to Portland, the courſe is W. by S. diſtance ſixteen leagues.

Q. If you be bound or forced into Portland, what precautions are neceſſary?

A. I muſt take care of the Shambles: they lie about E. by. S. or E. S. E. three miles from the

the Bill of Portland, and have but fourteen or fifteen feet on them at low-water. To go into the Road, I muſt keep Weymouth Caſtle open with the Eaſternmoſt part of Portland, or open with the Stone-pier, and run until I bring the Eaſternmoſt part of Portland S. by E. or S. S. E. in eight or nine fathoms; keep Week Church open; and that will carry me clear: it flows from the Road to the Bill E. S. E. ſeven hours and an half. The Light-houſes bear from each other N. and S. the flood ſets right off the Bill nine hours.

N. B. In caſe you ſhould be embayed to the Weſtward of Portland, and no poſſibility of getting out, between Burton and Chiſell (where it ebbs nine hours, and flows only three) there is a ſteep Beach of Pebbles; there run your ſhip on ſhore with as much ſail as you can carry, eſpecially if at the beginning of an ebb, and remain on board for three or four ſeas, and you may get on ſhore with ſafety.

Q. How would you anchor in Torbay?

A. Bring the Bury-head to bear S. by E. or S. S. E. and let go my anchor in eight or nine fathoms water.

Q. What is to be obſerved in ſailing into Plymouth Sound?

A. If coming from the Weſtward, and am got round the Ramhead, I muſt give Penlee Point a good birth, by reaſon of a ledge of rocks that lies off from it; then haul in N. N. E. half E. For anchoring, the beſt mark is Mount Edgecumbe juſt open, the Withy-hedge right up and down, and St. Nicholas iſland N. W.; the leading mark is Plymouth Church open with the Weſt part of the Citadel. The dangers going in are, the Swiftſure N. by. W. one mile and an half; and, about half a mile Eaſt Southerly from that, is the Shag-ſtone; there is a Buoy on each of them, and but ſeventeen feet at low-water:

water: muſt leave them on the Starboard ſide.

N. B. The land over Plymouth makes double and treble; it may be ſeen in fifty fathoms. On the high land, over the Ramhead, ſtand a Church and Steeple, which are a good mark to know the Ramhead.

Q. What are the dangers in ſailing into Falmouth harbour? and the beſt marks to avoid them?

A. The dangers are the Manacles, and the Falmouth Rock. The Manacles lie S. and S. by W. from Falmouth harbour; and the Rock is known by a pole ſtanding on it, and lies neareſt the Weſt ſhore. The beſt going in is on the Eaſt ſide of the Rock: it is a narrow, deep channel, which I may ſail up by the Lead, and borrow to St. Mawes' ſide to five or ſix fathoms water; the Weſt ſide is the ſhoaleſt. The beſt anchoring is in Car-

rick road, St. Mawes' Caſtle bearing E. S. E. laying my Eaſternmoſt anchor in eighteen fathoms, and my Weſternmoſt in ſix or ſeven fathoms.

N. B. In going out of this harbour, you muſt ſteer S. or S. by E.; if with an ebb, S. S. E. or S. E. by S.

Q. What are the dangers that lie off from the Lizard and the Land's-end?

A. Many. 1. The Rundleſtone is a Rock that lies almoſt a league to the South-Eaſtward of the Land's-end, diſtance about four miles. To avoid it, I muſt keep the Tower of the Church, that ſtands on the Land's-end, open; and that will carry me clear of it: but, if I keep ſo near the land as to hide the Church, then I go between the land and the Rock; and, when I am a-breaſt of the Red Clifts that are by the water-ſide, then I am a-breaſt of the Rock.

2. The

2. The Vaule is a Rock that lies about S. S. W. from the Land's-end; diſtance three leagues, and makes like the bottom of a ſhip at half-tide. There are forty-two fathoms water cloſe to it on either ſide.

3. The Gulf or Wolf Rock lies from the Lizard about W. diſtance ten leagues, and from the Land's-end S. S. W. diſtance four leagues; it is peaked, and appears above water at half-tide: round about it is clear ground.

4. The Breſon lies from the Land's-end about N. or N. by W. diſtance five leagues.

5. The Seven Stones are a row of Rocks that come not above water; but the ſea always breaks over them: they lie from the Land's-end W. half S. diſtance ſeven leagues; and from St. Martin's-head, Scilly, N. E. diſtance three leagues.

Q. How does the Land's-end appear, when you firſt make it?

A. It appears in Hummocks, with a Church on it; and may be ſeen, in fifty-four fathoms water, eight or nine leagues off.

N. B. A S. W. by W. Moon makes a full-ſea between the Land's-end and Scilly.

Q. How do you know the Lizard, when you firſt make it?

A. It is the Southernmoſt land on the coaſt, and may be ſeen ſeven or eight leagues off, in forty or forty-two fathoms water.

Q. If you were forced into Mount's-bay, where would be the ſafeſt anchoring ground?

A. Mount's-bay lies between the Lizard and the Land's-end; on the Eaſt ſide of it is a high Iſland; and on the Weſt, a Caſtle, called St. Michael's Mount: from the Eaſt-

ward

ward of the Bay runs off a Ledge of Rocks near a league into the ſea; all along the coaſt is full of Rocks, and not ſafe to anchor in. To ſail into this place, I muſt bring St. Paul's Steeple W. N. W. keep over to the Weſt ſhore, and make for St. Clement's Iſland, which is before the town of Mouſehole, having the Caſtle on the Starboard-ſide: I ſhall then ſee a large Sandy Bay; and, when within the Iſland, there is good anchoring in ſeven or eight fathoms water, land-locked from all winds but a S. E.

Q. What are the dangers in going into Scilly? and the beſt marks to avoid them?

A. St. Mary's Sound is the beſt way into Scilly. St. Mary's Iſland lies on the S. E. ſide, and hath a Garriſon thereon, and a Wind-mill a-breaſt of it. The dangers are, firſt, the Spaniſh Lodge, which I muſt leave on the Larboard-ſide, near Smith's Iſland; it ſhews

itſelf in bad weather. And the next is Noman's Rock on the Starboard-ſide, above a cable's length from the firſt. From St. Mary's Iſland, a little without the Eaſternmoſt Point, the mark to lead me is, to keep the vanes of the Wind-mill upon the land of the two Rocks that lie on the W. ſide, ſo that I may go between them into the Fair-way.

Q. What are the bearings and diſtances of the principal Headlands, &c. in the Channel?

	Leagues.
A. From the South Foreland to Dungeneſs, S. W. by W. —	6
Dungeneſs to Fairleigh, W. S. W.	3
Fairleigh to Beachyhead, W. S. W.	6
Beachy to the Oars, W. S. W. —	13
The Oars to Dunnoſe, W. by S. —	5
Dunnoſe to Portland, W. by S. —	15
Portland to the Start, W. by S. half S.	17

From

	Leagues.
From the Start to the Eddyſtone, W. half N. —— ——	8
Ditto to the Ramhead, W. N. W.	8
Ditto to Plymouth Sound, W. N. W. half N. —— —— —	7
The Ramhead to the Deadman, S. W. by W. —— — —	8
The Deadman to St. Ann's Point, S. W. by W. — — —	8
The Start to the Lizard, W. by S.—	14
The Lizard to the Land's-end, W. N. W. — —— —	9
Ditto to the Southernmoſt part of Scilly, W. S. W. — — ——	16
The Land's-end to Scilly, W. S. W.	7
The Lizard to the Caſkets, E. ——	38
The Lizard to the Gulf-rock, W.	9
The Land's-end to ditto, S. S. W.	4
The Lizard to the Rundleſtone, W. N. W. half W. — —	7
The Land's-end to ditto, E. —	4

	Leagues.
	8
	6
	7
	3
	8
	14
	9
	10
	7
	38
	9
	4
	7
	4

PART II.

SELECT and APPROVED

DIRECTIONS for WORKING a SHIP,

In all difficult Caſes that may probably happen.

DIRECTIONS, &c.

Q. HOW would you tack a ſhip with all her ſails ſet?

A. Square the ſprit-ſail-yard, and put the helm a-lee; let go the fore-top bowline; jibb and fore-ſtay-ſail ſheets let go; brace-to, and back the fore-top-ſail, as occaſion requires: and, when the wind is on the bow, out tacks, and ſheets, the wind a-head, haul mainſail; when the ſhip has paid round, and the after-ſails full, haul of all, ſhift the helm, get aboard the tacks, and haul aft the ſheets, and brace up the yards, as occaſion may require.

Q. How would you tack a ſhip with her three top-ſails only?

A. Put the helm a-lee; keep faſt the fore-top bowline, to prevent its making a back ſail; and, when the ſail ſhivers, brace-to and help her; the wind a-head, haul main-top-ſail, haul the bow-lines up; the after-ſails being full, haul of all, haul as the ſhip comes to, right the helm, and brace the yards, as I may think proper.

Q. How would you wear a ſhip with all ſail ſet?

A. Haul the mizen up, ſhiver the mizen top-ſail, put the helm a-weather, eaſe off the main ſheet and lee-braces, let go the main and mizen top bow-lines, haul in the weather braces abaft; when the wind is upon the quarter, raiſe the main tack, and gather aft the ſheet; the wind being right aft, get aboard the main tack, haul aft the ſheet, brace up the main yard, ſquare the head ſails, get aboard the fore tack, haul aft the ſheets,

ſheets, right the helm; and, when the ſhip comes to, trim all ſharp, and haul the bow-lines.

Q. How would you wear a ſhip under her courſes?

A. Haul up the mizen, put the helm a-weather, eaſe off the main ſheet, let go the lee-main braces and bow-lines; as ſhe falls off, gather in the weather-brace; when the wind is abaft the beam, raiſe the main tack; when the wind is almoſt right aft, haul aft the main ſheet, and brace up the yard; and, when ſhe is before the wind, ſquare the head-ſails, and get aboard the fore-tack, ſhift the helm, gather aft the fore ſheet; as the ſhip comes to, haul the mizen out, to eaſe her to, trim all ſharp, haul the bow-lines.

Q. How would you wear ſhip under her mainſail only?

A. To lay-to upon the other tack, I muſt watch the ſhip's falling off, put the helm a-weather; and, as ſhe falls off, eaſe off the ſheet: but, if that will not do, I will get tarpaulins in my fore ſhrouds, or man them; in caſe ſhe will not veer with this method, I will haul aft the main ſheet again, and lay her to as before; I will then get a piece of canvaſs, and laſh it round the lee-quarter of my ſprit-ſail yard, and top the yard up as much as poſſible, to prevent the ſail from filling with water, when it is looſed; when the ſhip falls off, then put the helm a-weather, caſt looſe the lee-yard-arm of the ſail, and haul aft the ſheet; and, as the ſhip falls off, caſe off the main ſheet, and gather aft the weather brace, raiſe the tack, and gather aft the ſheet; and when the ſhip is before the wind, get on board the other tack, aft the ſheet, ſquare the ſprit-ſail-yard, furl the ſail, eaſe down the helm, haul cloſe aft the main

ſheet,

ſheet, brace up ſharp, and haul the bow-line.

Q. Suppoſe it blow very hard, and you ſplit your main-ſail; what would you do?

A. I would haul the main-ſail up, and ſettle the yard; unbend the ſail, and bend another; get aboard the tack, and aft the ſheet; and then ſway the yard up; the ſail being aback will prevent its fluttering; let the ſail fill, which will help and make the yard go up much eaſier. While I am doing this, the main-ſtay-ſail ſhould be ſet.

Q. In caſe you were to carry away your maſt, what method would you take to get clear of the wreck?

A. I would put my helm a-weather, to give the ſhip ſome way through the water; and then cut away.

Q. Do you underſtand how to fox-haul a ſhip?

A. Yes. To foxhall a ſhip is, when ſhe miſſes ſtays and is at ſtand, to haul the mizen up, haul about the after-ſails and let go the weather bowlines forward; haul up the lee bow-lines; ſet in the weather braces; and keep the head-ſails a-back, to prevent the ſhip having head-way; by which means, ſhe will pay round in her length. I muſt obſerve to keep the helm a-lee, by reaſon ſhe will have ſternway, as ſhe falls off, muſt keep the after-ſails ſhivering; when ſhe is before the wind, brace up abaft, and get aboard the fore-tack; and as ſhe comes to, haul the mizen out, and turn ſharp.

Q. How do you box a ſhip off?

A. Put the helm hard a-weather; let go the fore ſheet, lee braces, and weather bow-

lines

lines forward; and ſet in the weather braces; and, when ſhe falls off, trim the head-ſails.

Q. Were you to carry away your bowſprit, what would you do?

A. Should that happen, or that I ſhould ſpring my bowſprit, I would immediately wear ſhip, and keep her before the wind; and then, for the ſecurity of the fore-maſt, I would carry forward runners and tackles, and bouce them well taught till I can get a hawſer, or ſufficient Rope, and clench it round the maſt-head, and ſecure it to the bits of the Forecaſtle, or to the Cat-heads.

Q. If, by accident, your Ship were brought by the lee, what would you then do?

A. When a ſhip is brought by the lee, it is commonly occaſioned by a large ſea, and by the neglect of the helms-man, when the wind is two or three points on the quarter,

the ſhip taking a lurch brings the wind on the other ſide, and lays the ſails all dead to the maſt, as the yards are braced; ſhe then, having no way, and the helm being of no ſervice, I would therefore brace about the head-ſails, ſharp the other way, then haul the main-ſail up, and juſt keep the main and mizen top-ſails ſhivering; when ſhe gathers way, and brings the wind aft again, raiſe the fore tack, and ſquare the head ſails, trim the ſails as they were before, and bring her to her courſe again handſomely.

N. B. It is dangerous bringing a ſhip by the lee in a gale of wind; for ſhe lying entirely againſt the ſea, her ſails can be of no ſervice till braced about.

Q. Suppoſe you were in imminent danger of going aſhore, and had no time to tack, or room to wear; what would you do in that caſe?

A. I would

A. I would foxhaul her, by heaving her up in the wind, and then clap all ſails aback, and let her ſtern go round to windward on her heel.

Q. Suppoſe you were upon a leeſhore, and had neither room to wear or ſtay, nor any anchoring ground; how would you put the ſhip's head round the other way?

A. I would put my helm hard a-lee; and, when ſhe comes head to wind, raiſe my main and fore tack directly, make a run with my weather braces, and clap all aback at once; then haul forward my lee tacks and bow-lines, as far as I can, that the ſhip may fall round on her heel; and, when the main-ſail begins to ſhiver, I would haul it up, and fill my head-ſails, and ſhift the helm hard a-weather; then, when the wind comes on the other quarter, haul on board the main tack, and bring her cloſe to the wind.

 Q. If

Q. If you were upon a lee-ſhore, and had neither room to wear or ſtay; what would you do in that emergency?

A. When I ſee the danger, I would take a good hawſer, and lead it out of one of my quarter ports, and bend it to the anchor to leeward; the other part I would bring to the capſtan, and ſhip the bars, and, when I go to tack, clap my helm a-lee; as ſoon as the wind is out of the main-ſail, haul it up; then let go the anchor, and heave on the ſpring to caſt her, becauſe the cable ſhould not check her when ſhe comes head to wind; brace about the main yard, haul aboard the tack, and cut away the cable and ſpring; when the main-ſail fills, haul fore-ſail, haul aboard the tack, and trim her to the wind.

PART III.

NECESSARY REMARKS

TO BE OBSERVED

IN COMING INTO THE CHANNEL.

NECESSARY REMARKS, &c.

PERSONS coming from a long voyage, without doubt, try for ground in time; and, if poſſible, would keep in the latitude of 49° 00 N. in which latitude, and in ninety fathoms water, you will have fine ſand ſixty-ſix leagues from the Lizard; but, ſhould you be in the latitude of Scilly, then coarſe ground and eighty fathoms. In coming in, having ſtruck ground in ninety fathoms, you will, from the latitude 49° 30 to 49° 00, meet with the ſame depth; then, ſailing ſix or ſeven leagues, you will ſhoal five fathoms at once; you run in that depth for ſome time, and deepen again; and perhaps in three leagues

you

you ſhoal again; for it is to be ſuppoſed the ground is not gradual: you muſt therefore have recourſe to the general ſoundings, not to particulars. But, if, in coming in, you meet with ſand interſperſed with black ſpecks like beaten pepper, and you have ſixty-four fathoms, then Scilly bears N. E. by N. fourteen leagues; and if, at any other depth, you have the ſame ſoundings from ninety to ſixty-four fathoms, you have the Channel fairly open. When you are in the latitude of 49° 30, and have ſeventy-five fathoms, you muſt be ſure to ſteer E. by S. or E. S. E. and then you will but keep your latitude good; which, if poſſible, do not go to the Northward of, till you get within Scilly, nor then, without you have an opportunity of making the land. When you are abreaſt of Scilly, if you be not to the Southward of 49° 25, nor to the Northward of 49° 20, and have ſixty fathoms, you are ſure to be the length of Scilly, and in the latitude as before-mentioned; with thirty-five fa-

thoms you are abreaſt of the Lizard. If at any time you ſhould be to the Southward, and have from ninety to ſeventy fathoms, or in the latitude of Uſhant, or farther Southerly, you will have reddiſh gravel ſand, with many pieces of ſhells; which ſoundings are no where to be found in the Channel: if in the latitude of Uſhant you have eighty-ſix fathoms, you are diſtant from thence thirty-ſix leagues; if ſeventy fathoms, eleven leagues; then you muſt be careful, in the night or thick weather, to come no nearer to it than ſixty-three fathoms, nor to the Leams than ſixty-five fathoms. You may know when you are to the Northward, or to the Southward, of Scilly, by the ground. When you are to the Northward, or in the latitude of it, you have ouze on the lead from eighty-five to ſixty fathoms; then you muſt haul to the Southward till you meet with coarſer ground, which you will have to the Southward of Scilly: you may depend on having ouze on the lead in the la-

titude, or to the Northward of it: ſo that, if you keep the lead going, you may prevent falling to the Northward. For your better knowing when you are near Scilly, you will find on the lead black ſtones, the like of which are no where elſe in the Channel: in the night come no nearer than fifty-three fathoms; and in that depth you are not above three leagues from the Scilly Rocks. That you may know if you be within Scilly, and in the Channel, ſtand to the Southward, and you will have deeper water; to the Northward, and you will have ſhoaler. Come no nearer to the Lizard, in the night, than forty-five fathoms. If running up the Channel in the night; keep without the ſtream of forty fathoms, for in that ſtream the Eddyſtone lies: between the Start and Portland, no nearer than twenty-four fathoms; nor from Portland to the Neſs, than twenty fathoms; if in the night, or thick weather. When you are in the Fair-way, up Channel, you will al-

ways

ways have fine ſand, intermixed with black ſpecks and hakes-teeth. By this time you will moſt probably have made the land. But obſerve, that between Beachy and the Wight there are from thirty to thirty-eight fathoms water; by which you may be led to imagine yourſelf farther out than you are: that depth is found at four leagues diſtance from the Oars and Eaſtborough-head.

PART IV.

GENERAL

INSTRUCTIONS and ALLOWANCES,

GIVEN

By the Owners of Eaſt-India Ships to the ſeveral Commanders in that Service.

PART IV.

GENERAL

INSTRUCTIONS and ALLOWANCES,

GIVEN

By the Owners of Half-Indian Ships to the General Commanders in that Service.

GENERAL INSTRUCTIONS, &c.

ALLOWED.

I. For PILOTAGE.

	l.	*s.*	*d.*
FROM Gravesend to Deal, —	10	10	0
From Deal to Portsmouth (when ordered there), —	12	12	0
From Dover, or Deal, to the ships mooring in the river Thames,	10	10	0

II. For FEES.

To the Company's Husband, at Botolph-wharf, —— —	5	5	0

To

	l.	s.	d.
To the Company's Waiters One Shilling per day, except when proviſions are dreſſed on board,			
To Searchers at Graveſend, ——	4	4	0
To their Boatmen, —— ——		10	6
To Tilbury Fort, —— ——		2	6
To the Company's Agent at Deal, if he muſter the ſhip's company in the Downs, ——	1	1	0

II. To the CAPTAIN.

For his Table outward till the ſhip's arrival at her laſt-conſigned port in India or China,	50	0	0
In lieu of beſt Brandy (when none put on board by the Owners),	5	5	0
In lieu of Pickles, — —	3	3	0
In lieu of Hams, —— —	5	5	0
In lieu of Stationary, — —	2	2	0
For his Table, homeward-bound, and ſixty bags of Paddy, equal to ten quarters	50	0	0

quarters of grain, put on board by the owners, outward-bound.

At Bengal, for himſelf and Purſer, 6 current Rupees per day.

At Madras, for ditto, — — — 1½ Pagodas.

At Bombay, for ditto, — 5 Silver Rupees.

At Bencoolen, for ditto, — 2 Spaniſh Dollars.

At Mocha, for ditto, — 1½ ditto.

At the Cape of Good Hope, for ditto, 1½ ditto.

At St. Helena, for ditto, — 7s. 6d. ſterling.

At Ireland, for himſelf only, — 5s. ditto.

INSTRUCTIONS.

IV. The Owners, for the future, will not admit of any allowance for the Captain, or Purſer, during the ſhip's ſtay, or detention, in any port, or ports, in Great-Britain, neither outward nor homeward-bound; nor at Madagaſcar; nor at any other place whatſoever, that does not belong to the Europeans, where the ſhip may ſtop for water, or neceſſaries, during the courſe of her voyage.

V. You are not to ſuffer any ſervant whatſoever to be rated at higher wages than are their due; nor let the Chief or Second Mates have more than one ſervant each. And you are likewiſe to obſerve, that the Owners will not allow wages, or pay, to any ſervant whatſoever, either outward or homeward-bound, for their ſervice in the river Thames.

VI. Before you leave Graveſend, you are to ſend up to the Huſband, or Managers, of your ſhip, an exact account of ſuch men as were impreſſed at the India-houſe, and did not appear on board at the payment of the river pay, with the time each man ſerved on board, that the ſame may be allowed to their ſecurities, on their returning the two months impreſs advanced to them. And, if any man or men are diſcharged at Graveſend, on your paying the river pay; or that run, or are diſcharged, after they are paid the river pay; you are likewiſe to ſend up their names the firſt opportunity that offers. All which muſt

be dated and ſigned by you, or your Chief Officer.

VII. You are to ſend up to the Huſband, or Manager, of your ſhip, the names of all the people that you may impreſs, or enter, either at Graveſend, in the Downs, or elſewhere, before you leave England; together with the time of their entry, and wages per month.

VIII. Whatever people you may impreſs, or enter, either at Graveſend, or in the Hope, you muſt be very careful to inſert the time of their entry, and wages per month, in the reſpective columns of the contract delivered you for that purpoſe; and to make each perſon duly ſign, ſeal, and deliver the ſame, in the preſence of two witneſſes, who are to ſign the ſame as ſuch: which contract you are to return to your ſaid Huſband, or Manager, on your leaving the Hope, or as ſoon afterwards as you conveniently can; together with each perſon's reſpective receipt for the impreſs ſo paid him or them.

IX. You are to give your Owners credit for all the Paſſengers you may carry out to India, Ten Pounds each; and likewiſe for every Laſcar, or Servant, Ten Pounds; and for every Paſſenger you may bring home from India, or China, Ten Pounds; and for every Servant, Ten Pounds.

X. Your Owners expect an exact account to be kept of the expences of all proviſions, as per Book, marked N° 1. (two of which I have delivered you, one of them to be kept by the ſhip's Steward, and the other by yourſelf) that you may know, at any time, what quantity will be neceſſary to lay in for your Paſſengers.—You are to obſerve, that eighty-four gallons of Rice, or five hundred pounds of Biſcuit, are ſufficient for one week's expences of that kind of proviſions; and that twenty-eight weeks proviſions of all kinds will be ſufficient for a paſſage home in time of peace: but, in time of war, it is adviſable to lay in thirty-two weeks proviſions at leaſt.

XI. The

XI. The Owners inſiſt, that you tranſmit to them an account of all expence of proviſions, &c. and of what remains on board, as often as you have opportunity; and that they will allow of none to be charged as ſupplied from abroad, but what appear by the before-mentioned books, marked N° 1.

XII. You have alſo three books delivered to you, marked No. 2. for the Gunner, Carpenter, and Boatſwain, to keep an account of the expence of all their ſtores; which you are to examine often, and ſign them duly every month: and, on your return to England, the remainder of all their ſtores is to be delivered up to the particular Tradeſmen they may be ordered to, or elſewhere, as the ſaid Huſband, or Manager, or Owners, ſhall direct; and whatever the Petty-officers return, leſs than they ought, muſt be inſerted by you in their reſpective books, which are to be returned to me, or to the Huſband, or Manager, for the time, before their wages are paid.

XIII. You

XIII. You are to avoid touching at any port or place, before your arrival at your conſigned port in the Eaſt-Indies, or China, without an abſolute neceſſity; which muſt be aſcertained by a conſultation of your officers; it being attended with very great loſs to your Owners, demurrage not commencing till four months after your arrival at your conſigned port: therefore, if they find that you touch at any port, or ports, for your intereſt, they will oblige you to pay for the detention of the ſhip at ſuch place.

XIV. You are to avoid ſhipping any Laſcars, if poſſible, to bring with you to England, they being attended with very great expence; but ſhip Europeans, if you be in want of men, by application to the Governors and Council, in writing, or any other method, ſo that you do not diſtreſs each other.

XV. What money you may want for the uſe of your ſhip, take of the Company on Charter-party terms, unleſs to be had of any

private

private perſon or perſons on Reſpondentia up on better terms, and not otherwiſe; making the bond, or bonds, payable ninety days after the arrival of the ſhip at her moorings in the river Thames: but you are to give the preference to the Company.

XVI. You will obſerve, by the Charter-party, that the ſhort-delivery, and damaged goods, are to be paid for in England, according to the loſs and damage ſettled by the Governor and Council, and yourſelf: at the foot, therefore, of the account you ſign, you muſt inſert, if you think they have charged any ſhort-delivery, or damage, that ought not to fall on your Owners, the cauſes whence you apprehend ſuch deficiences and damages aroſe, by ſetting forth the nature of weighing, package, &c. and you muſt tranſmit to your ſaid Huſband, or Owners, copies of the ſame by the earlieſt conveyance that offers, and by every other opportunity that you can; that your Owners may have due advice to inſure

the

the ſame, as they are liable to pay ſuch deficiency and damage, ſhould your ſhip never return.

XVII. You are likewiſe to obſerve, that the Governors and Council, and others of the Company's agents abroad, have directions to weigh, or cauſe to be weighed, all the lead, iron, copper, and elephants teeth, they may receive from you, in the ſame manner as they are weighed in England, viz. ten pieces of lead are weighed at one draft, and no weight leſs than four pounds uſed in weighing; iron, about five hundred weight and a quarter, at one draft, and two pounds ſtruck at the ſcale for each draft; copper and elephants teeth, as nearly five hundred weight at a draft as can be, and to allow one pound for every five hundred weight; and all other weighable goods, which they may receive from you, are to be weighed in the ſame manner as they are in England.

XVIII. During

XVIII. During the courſe of the voyage, if you, or your Officers, ſee or ſuſpect any of the cargoe you are taking in, either for the Eaſt-Indies, China, or Europe, to be either wet, damp, or damaged, or the package bad, you are ſtrictly enjoined to take, or cauſe to be taken by your Commanding Officers on board, the marks and numbers of ſuch goods, and the condition they appear to be in, and except againſt them in your bills of lading. And alſo, if you take in any goods belonging to the Company, or on a freight upon their account, from on board any ſhip or veſſel, either to carry from port to port in the Eaſt-Indies, or China, or to bring home with you; be ſure to except againſt any damages, or ſhort delivery, of ſuch goods in your bills of lading; and likewiſe whatever grain, copper, iron, ſteel, treaſure, copper pots, red-wood, ſaltpetre, pepper, or any periſhable commodities, you make take on board during the courſe of your voyage. You are alſo

ſtrictly enjoined to except in your bills of lading againſt ſhort delivery, want of weight, or damage of ſuch goods; which is often unreaſonably charged upon the Owners; and not to take in any more goods or cargoe, to carry from port to port in the Eaſt-Indies, or China, than your charter-party expreſſes.

XIX. On your taking in goods, or cargoe, at any port or ports in the Eaſt-Indies, or China, either for Europe, or to be carried from port to port in the Eaſt-Indies, or China; if the ſeaſon be ſo far advanced, that you apprehend you may loſe your paſſage to the port or place you are intended to be conſigned to, you are to ſignify the ſame in writing to the Governor and Council, or Chief Agent or Factor, of ſuch place or port where you may be taking in ſuch cargoe; and, if they then diſpatch you out of time, you muſt proteſt againſt them, or him, for all damages the cargoe may ſuſtain on account thereof; obſerving, that ſuch proteſt be drawn up by a Notary

tary Publick, or ſome proper perſon, and delivered to the ſaid Governor and Council, or Chief Agent or Factor, by one of your Officers, who is to give you an account of the time and place of the delivery of ſuch proteſt, duly dated and ſigned by ſuch Officer; to which muſt be annexed an atteſted copy of the ſame proteſt, which you are carefully to keep, in order to bring home for your juſtification.

XX. If you enter a Seaman or Mariner abroad, be ſure you make him ſign, ſeal, and deliver, the contract delivered you for that purpoſe; in which you are, firſt, to inſert, in the reſpective columns, the quality and wages per month, which ſuch perſon agrees to proceed the remainder of the voyage for; and, if you pay him any impreſs, or advance, be careful to make him ſign a receipt for the ſame: and likewiſe, if you entertain any perſon on board to work for his paſſage home, you muſt abſolutely make him ſign an agreement in writing, expreſsly declaring, that he

doth agree, faithfully, willingly, and readily, to work, and perform all and every kind of duty, or ſervice, he is capable of, and may be required to do, by you, or your Officers, on board your ſaid ſhip, during the remainder of your voyage into the River Thames; and without any fee or reward whatſoever, except ſuch proviſions as you give any other Seaman or Mariner, and in the ſame proportion.

XXI. If the Governor and Council, or any other of the Company's Agents, or ſervants abroad, do ſend on board your ſhip any Military man or men, or any other perſons whatſoever, for you to bring home as a paſſenger or paſſengers; you are to inſert in writing, that they deliver to you with ſuch paſſenger or paſſengers, an agreement in writing, ſigned by each reſpective perſon ſo to be brought home, that they will not directly or indirectly aſk, ſue for, or attempt to recover, any wages, gratuity, or pay, for any duty,

duty, ſervice, or ſuſtenance, they may be called on to give the ſhip, in time of need, during the whole paſſage; for want of which precaution, ſeveral ſuch perſons have ſued the Owners of the ſhip they came home in, and recovered wages as ſeamen.

XXII. You muſt obſerve, that all tranſactions and buſineſs whatſoever, that you may have with the Governors and Councils, Super-cargoes, or Agents, or any other of the Company's ſervants abroad, relative to your ſhip or cargoe, muſt be in writing: and, for your government therein, we direct, that you have recourſe to your charter-party, and theſe inſtructions, which you muſt take with you upon all occaſions of buſineſs relative to your ſhip and cargoe.

XXIII. You are to enter exact copies (into a book kept for that purpoſe) of all orders, diſpatches, and inſtructions, which you ſhall, or may, at any time, receive from the Governors and Councils, Super-cargoes, or Agents,

or any other of the Company's' ſervants you may be conſigned to abroad during the voyage; together with true copies of all letters and tranſactions whatſoever, that you may have with them, relative to the ſhip or cargoe: which book, when you return home, you are to deliver to your ſaid Huſband, or Manager, for the time being, for the uſe of your Owners.

XXIV. If you are at any expence for any of the Company's ſoldiers in your outward bound paſſage, or from port to port in the Eaſt-Indies, you are to deliver in an account, in writing, of the amount thereof; together with a charge of ten per cent. thereon for advancing the money, to the Governor and Council, or Chief Agent of the place or port where you land them; requiring the ſame to be then and there repaid you.

XXV. You are to give no preſent to any Governor, &c. in our ſettlements, on the Owners account. And, in Foreign ports, you

are

are not to exceed five pounds ſterling; that ſum being ſufficient for liberty to procure refreſhments.

XXVI. You are to be very cautious of what you, or your Officers, write in your journals (the leſs the better); the Owners of ſhipping having frequently ſuffered, by trifling things inſerted in journals.

XXVII. You are to pay, at every port you anchor at, belonging to the Company, one barrel of gun-powder; and take a receipt for the ſame; by the neglect thereof, ſeveral ſhips have paid five guineas at their arrival in England.

XXVIII. Your Owners inſiſt, that you ſend to the Huſband, or Managers of your ſhip for the time being, by every conveyance that offers, a general liſt of all the ſhip's company; together with an exact account of all thoſe that die, run, or are diſcharged, during the voyage; and alſo a liſt of all thoſe that are ſhipped abroad, with the time and

place of their entry: all which liſts muſt be properly dated, and ſigned by you; by the negligence whereof, many ſhips have paid conſiderable ſums to the atttornies of people that were dead, or run; to prevent which, for the future, they expect, that you will keep a general liſt of the ſhip's company, as above deſcribed, ready written, to be ſent on any unexpected occaſion that may offer.

XXIX. You are required to bring home your ſails, that will be fit for another voyage, in as good repair as time and weather will permit.

XXX. During any part of the voyage, if you meet with any of the ſhips that are under my direction, they are ordered to deliver you any ſtores they can ſpare, that you may be in need of, only taking your receipts for them; and you are deſired to ſupply them on the ſame terms: but, at a general meeting of Owners, it has been agreed, that, where the ſhips belong to different Managers,

they

they ſhall pay each other, in the country, fifty per cent. above the prime-coſt, on all ſtores ſupplied from each other.

XXXI. On your arrival in the river Thames, you muſt immediately ſend up to the Huſband, or Manager for the time being, an exact liſt of all the Officers and men, &c. that have been entertained by you during the whole courſe of the voyage; with their quality, and time and place of their entry, their wages per month, and impreſs received; alſo the whole amount of each man's ſick quarter, purſerage, funeral charges, effects bought or ſold at the maſt, diſcharges, deaths, and runnings, when and where entered, in their reſpective columns, againſt each perſon's name, as per method herewith given you, marked N° 3. And, for the more ready making up the wages, &c. you are to obſerve, that the money you advance the people for ſick quarters, or funeral charges, muſt not be charged in the purſerage; ſuch practices having oc-

great confuſion in the pay-office; but charge the whole to your Owners, and ſend up ſuch charges as above directed.

XXXII. Immediately on your arrival in the river Thames, you are to deliver to the Huſband, or Manager of your ſhip for the time being, an exact account of the reſpective times of your arrival at, and ſailing from, every port or place you have anchored or touched at during the whole courſe of your voyage; and alſo a liſt of all the paſſengers, ſervants, and ſoldiers, carried out with you, or brought home, or conveyed from port to port in the Eaſt-Indies.

Signed,

C. R.

A ſhort

A ſhort eaſy ARITHMETICAL RULE, *to find the Courſe and Diſtance, when the Rumbs ſailed on do not vary above three or four Points.*

IT often happens, when a ſhip is cloſe hauled, that ſhe varies her courſe a point or two in the ſpace of a watch, or eight glaſſes; which variations *ought* to be marked on the Log-board, and would occaſion much trouble in working the day's work, that is, finding the true courſe, diſtance, &c. made in twenty-four hours. The common method to avoid ſuch trouble is, to gueſs at the mean courſe ſteered every time the Log is hove. Now, by the following rule, the courſe and diſtance may be eaſily found every four hours by the Officers of the Watch, and ſet down

on the Log-board as the true courſe and diſtance, without any ſenſible error.

Multiply the number of glaſſes, run on each Rumb, by the knots run per hour, and note their products; which multiply by their reſpective courſes. Now, the ſum of theſe laſt products; divided by the ſum of the former products, will give the true courſe ſteered; and the former products, divided by 8, will give the knots run per hour, during the Watch.

EXAMPLE. Suppoſe a Ship runs:

Glaſſes.	Knots per Hour.	
2 ——	6 ——	S. 30° Weſt.
3 ——	5 ——	40
3 ——	4 ——	50

Then, 2 multiplied by 6, is 12; and 3 by 5, is 15; and 3 by 4, is 12; again, theſe products 12, 15, and 12, multiplied by 30°, 40°, and 50°, reſpectively produce 360, 600, and 600, and their ſum is 1560; which,

which, divided by the ſum of the former products, 12, 15, and 12, equal 39, the quotient is 40°, the true courſe ſteered, viz. South 40° Weſt, and 39 divided by 8 gives the knots run per hour, viz. $4\frac{7}{8}$.

This method is recommended by Don George Juan (the greateſt Mathematician the Spaniards could ever boaſt of), in his Treatiſe of Navigation printed at Cadiz, eighteen years after his return from South America, where he was ſent, together with Don Antonio de Ulloa, Monſ. La Condamine, and others, to determine the meaſure of a degree under the Equinoctial line. This voyage, which has been publiſhed in the Engliſh language, contains the moſt authentic and accurate account we have, or can indeed expect to have, of that part of the world. I muſt add, that it will prove to be the moſt uſeful ſupplement to Dr. Hawkeſworth's account of the ſeveral voyages undertaken by order of his preſent Majeſty, for making diſcoveries in the

Southern hemiſphere; which were ſucceſſively performed by Commodore Byron, Capt. Wallis, Capt. Carteret, and Capt. Cook. This Work, and the Voyage to South-America by Ulloa*, taken together, comprehend the moſt ſatisfactory deſcription of the coaſts, iſlands, cities, &c. of the great Pacific Ocean, that has ever been given.

* "In Voyages there is, generally ſpeaking, no part ſo tedious and unpleaſant, at leaſt to the generality of readers, as what regards occurrences at ſea; and yet theſe are allowed to have their utility. In Don Ulloa's Voyage, however, though they are found pretty copiouſly, we ſhall ſee them without thoſe defects. If theſe writers mention the variation of the compaſs, they explain the nature, enquire into the cauſe, and ſhew the uſes that ariſe from obſerving this phænomenon. In this manner they treat of calms, winds, currents, and other incidents; in ſo ſuccinct and ſcientific a method, as at the ſame time to be very inſtructive, and not unentertaining. In this reſpect, we may look upon their narratives as a ſort of practical introduction to the art of navigation; which we not only read without diſguſt, but which, when read with any tolerable attention, will enable us to underſtand many paſſages in other writers of voyages, which we ſhould otherwiſe paſs over, as utterly unintereſting and unintelligible."—*Preface to* ULLOA's *Voyage to South-America.*

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